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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/830,153	04/22/2004	Takuro Sekiya	2271/67583-A	8131
23432	7590	03/09/2006	EXAMINER	
COOPER & DUNHAM, LLP 1185 AVENUE OF THE AMERICAS NEW YORK, NY 10036			HUFFMAN, JULIAN D	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H-17

Office Action Summary	Application No. 10/830,153	Applicant(s) SEKIYA, TAKURO	
	Examiner Julian D. Huffman	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12, 14, 15, 17, 18, 20, 21 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18, 20, 24 and 25 is/are allowed.
- 6) ☒ Claim(s) 12, 14, 15, 17, 21 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12, 14, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al. (U.S. 6,428,160 B1) in view of Kojima et al. (U.S. 6,328,421 B1) and Uchida et al. (U.S. 5,136,307).

Roy et al. discloses:

With regards to claims 12 and 14:

an ink-jet recording device comprising:

a head unit (fig. 4, element 60) having a plurality of multi-nozzle recording heads (64, 66, 68, 70), each having nozzles (column 1, lines 52-54), through which ink is fired onto a recording medium;

a recording medium heating unit (74) for heating a printed surface of a recording medium without contacting the printed surface of the recording medium (column 6, lines 26-30 and column 7, lines 4-5), and said heating unit extending along a direction along which the nozzles of said recording heads are arranged, and said heating unit having a heating range, the width of which is wider than the width of a printing range of the

recording medium (fig. 4, 74 and 72 are wider than the printheads and also the media on both sides);

wherein said head unit and said plurality of multi-nozzle recording heads have a long dimension so as to cover the printing range of the recording medium (column 6, lines 57-61).

With regards to claims 15 and 17, a rear heating unit (72) provided on the rear side of the recording medium (heating unit 72 is located to the rear side of the recording medium, which is the leftmost side shown in fig. 4, or the side with the printed image could be considered the rear side), having a heating range extending along the direction along which the nozzles of said recording means are arranged, the width of which is wider than the width of printing range of the recording medium (fig. 4).

Roy et al. teaches that acoustic printing is beneficial because of it's high resolution and ability to create droplets smaller than the nozzle size (column 1, lines 52-62).

Roy et al. do not disclose the recording medium conveyed by a conveyance unit to a position at which the nozzle surface of the recording head faces the recording medium, or nozzles arranged in a density in a range between 400 and 2400 DPI so as to cover the printing range of the recording medium.

Kojima et al. discloses arranging nozzles at a pitch of 400 DPI thereby enabling high resolution printing at 1600 DPI (column 8, lines 27-32).

Uchida discloses a recording medium conveying device feeding a recording medium from a stack of sheets to a recording device (fig. 1, elements 415 and 416).

It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate the recording medium feeding device of Uchida into the invention of Roy et al. for the purpose of providing the recording medium to the recording device without requiring operator intervention and to arrange the nozzles of Roy et al. at a pitch of 400 DPI as suggested by Kojima for the purpose of providing the high resolution printing.

3. Claims 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roy et al. in view of Kojima et al. and Uchida et al. as applied to claims 12, 14, 15 and 17 above and further in view of Matsumoto et al. (U.S. 6,523,948).

Roy et al. as modified discloses that various types of heating devices may be used (column 7, lines 4-5 and column 6, lines 26-30).

Roy et al. as modified do not disclose a light source and optical system condensing light emitted by the light source.

Matsumoto et al. discloses an optical LED heater including an optical system condensing light emitted by the optical heater (fig. 18, element 146, column 14, lines 10-34).

It would have been obvious to one having ordinary skill in the art at the time of the invention to replace the heater element in the heater of Roy et al. as modified with the optical heater of Matsumoto et al. for the purpose of efficiently drying the ink (column 14, line 20).

Response to Arguments

4. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

5. Claims 18, 20, 24 and 25 are allowed.

Conclusion

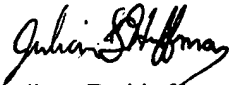
6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (571) 272-2147. The examiner can normally be reached on 10:00a.m.-6:30p.m. Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Julian D. Huffman
1 March 2006

 3/06
K. FIGGINS
PRIMARY EXAMINER